

REMARKS:

Status of claims and amendments

Claims 1-8 are pending in the application. In the Office Action dated March 22, 2006, the Examiner rejected claims 1-8 under 35 U.S.C. 112, second paragraph, as being indefinite, and rejected claims 1-8 under 35 U.S.C. 102(e) as being anticipated by Yanaki et al.

In this amendment, claim 1 has been amended to include the subject matter of original claims 2-5. This was done to more clearly define the subject matter which Applicant regards as the invention, and not for reasons of patentability. Claims 2-5 have been canceled. Claims 1, 6, 7, and 8 were amended for clarity. No new matter was added.

The 112 rejections

These rejections are respectfully traversed. To expedite prosecution, Applicant has deleted the word "standard" from the description of the time period in the claims. However, Applicant re-asserts that the selection and stepwise counting down of the (standard) time period are well within the capability of a person of ordinary skill in the art based on the teachings of the instant specification. Applicant would again like to call the Examiner's attention to paragraph [0017], lines 8-18, which states:

The engine control apparatus 200 at Step S4 determines a standard time period in response to the intake air quantity and the cooling water temperature. If the quantity of air sucked into the engine is low, a standard time period (e.g., 2,000 steps) is set up in response to the cooling water temperature from a map table corresponding to the low air quantity. If the quantity of air sucked into the engine is intermediate, a standard time period (e.g., 1,800 steps) is established in response to the cooling water temperature from a map table corresponding to the intermediate air quantity. If the quantity of air taken into the engine is high, a standard time period (e.g., 1,600 steps) is set up in response to the cooling water temperature from a map table corresponding to the high air quantity. Countdown for the standard time period determined above begins (S5) at one step per 500msec.

Applicant therefore respectfully submits that the time period, standard or not, and the stepwise counting down thereof, are not unclear.

The 102(e) rejection

This rejection is respectfully traversed. The Examiner stated that the arguments submitted by Applicant in the amendment of January 5, 2006, were not persuasive because “The applicant further argues that the prior art does not disclose ‘intake air amount is not used in the diagnosis of a thermostat.’ It is noted that the limitation was not part of the claims under review.” (Page 6 of the Office Action mailed March 22, 2006).

First, for clarification, Applicant would like to point out that in the amendment of January 5, 2006, Applicant stated that “intake air amount is not used in the diagnosis of a thermostat in Yamaki” (page 4 of the amendment mailed January 5, 2006, emphasis added), not that Yamaki does not disclose intake air amount not being used.

Second, The Examiner did not rebut Applicant’s assertion that Yamaki does not disclose using intake air amount in the diagnosis of a thermostat, but merely stated that “It is noted that the limitation was not part of the claims under review.” This is incorrect.

Claim 1 as submitted on January 5, 2006, contained the limitations of
measuring an intake air quantity...determining a standard time period based on the intake air quantity...counting down until the standard time period reaches zero...detecting...and storing [a cooling water temperature] when the standard time period reaches zero...and comparing the stored cooling water temperature with the corrected target temperature to determine whether or not a thermostat has failed.
(claim 1 as presented on January 5, 2006, emphasis added).

Currently amended claim 1 contains the limitations of
using...a first intake air quantity...to determine whether a thermostat failure diagnosis condition is met...determining a time period based on the first intake air quantity...wherein if a second intake air quantity...differs from said first intake air quantity, said time period is re-determined, said re-determining comprising comparing the time period remaining after the countdown, just before the second intake air quantity was measured, with another time period determined in response to the second intake air quantity...to determine whether or not a thermostat has failed.
(currently amended claim 1, emphasis added).

That is, as shown above, the present invention as claimed uses intake air amount in the diagnosis of a thermostat.

The Examiner did not specifically argue against Applicant's assertion that Yamaki does not use intake air amount in the diagnosis of a thermostat, but the rejection of March 22, 2006, was identical to that of October 17, 2005. In addition, the Examiner seems to have misinterpreted Applicant's assertion, as the Examiner erroneously stated that "the applicant further argues that the prior art discloses an air/fuel ratio detector, not a thermostat." (page 6 of the Office Action dated March 22, 2006), when applicant argued no such thing.

Therefore, Applicant re-submits that Yamaki does not use intake air amount in the diagnosis of a thermostat.

The Examiner cited paragraphs 0095, 0195, 0198, and 0203 of Yamaki as allegedly anticipating every limitation of claim 1 of the present invention.

Paragraph 0095 discloses diagnosis of an intake air temperature sensor. This paragraph does not disclose diagnosis of a thermostat. The diagnosis is carried out by comparing intake air temperatures at two different times. This paragraph does not disclose using intake air amount in the diagnosis of a thermostat.

Paragraph 0195 does disclose thermostat diagnosis; however this diagnosis is based directly on a comparison of estimated coolant temperature and actual coolant temperature. This paragraph does not disclose using intake air amount in the diagnosis of a thermostat.

Paragraphs 0198 and 0203 disclose diagnosis of an air/fuel ratio detector, not a thermostat. While the intake air amount is measured in these paragraphs, it is used only in diagnosing the air/fuel ratio detector. This paragraph does not disclose using intake air amount in the diagnosis of a thermostat.

Yamaki's thermostat diagnosis, described in paragraphs 0128-0132 and 0195, and FIG. 11, is carried out by mere comparison of an estimated coolant temperature to an actual coolant temperature.

Yamaki simply does not disclose or suggest use of intake air amount in the diagnosis of a thermostat.

Yamaki further does not disclose or suggest using a first cooling water temperature, an intake air temperature, and a first intake air quantity as factors to determine whether a thermostat failure diagnosis condition is met.

Yamaki further does not disclose or suggest determining a time period based on the first intake air quantity and the first cooling water temperature.

Yamaki further does not disclose or suggest counting down from said time period to zero by a plurality of steps.

Yamaki further does not disclose or suggest if a second intake air quantity differs from said first intake air quantity, said time period is re-determined, said re-determining comprising comparing the time period remaining after the countdown, just before the second intake air quantity was measured, with another time period determined in response to the second intake air quantity and a second cooling water temperature that corresponds to the second intake air quantity, and to continue the counting down step using a larger one of the time periods.

Yamaki further does not disclose or suggest detecting a third cooling water temperature and storing same when the time period reaches zero.

Yamaki further does not disclose or suggest correcting a target temperature accounting for the influence of a head wind.

Yamaki further does not disclose or suggest comparing the third cooling water temperature with the corrected target temperature to determine whether or not a thermostat has failed.

In short, Yamaki simply does not disclose or suggest a single one of the limitations of currently amended claim 1.

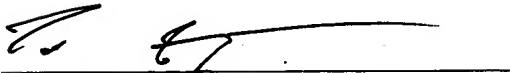
Claim 1 is thus patentable over Yamaki. The rejections of the dependent claims are rendered moot by the patentability of independent claim 1, from which all other pending claims depend.

Conclusions

In view of the foregoing, Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance is respectfully requested.

Authorization is granted to charge any outstanding fees due at this time for the continued prosecution of this matter to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310 (matter no. 060945-0178).

Respectfully submitted,



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